

## Missouri Department of Natural Resources

# Total Maximum Daily Load Information Sheet

## Bynum Creek

### Water Body Segment at a Glance:

**County:** Callaway  
**Nearby Cities:** Auxvasse, Kingdom City  
**Length of impairment:** 0.3 miles  
**Pollutant:** Non-Volatile Suspended Solids (NVSS)  
**Source:** Limestone quarry  
**Water Body ID (WBID):** 709

**TMDL Priority Ranking:** EPA approved a Permit-in-Lieu of a TMDL on Dec. 28, 2007.



State map showing location of watershed

### Description of the Problem

#### Beneficial uses of Bynum Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Human Health-Fish Consumption
- Whole Body Contact Recreation

#### Use that is impaired

- Protection of Warm Water Aquatic Life

#### Standards that apply

- All water bodies in Missouri are protected by the general criteria (standards) contained in Missouri's Water Quality Standards (WQS), 10 CSR20-7.031(3). These criteria are also called narrative criteria, since they do not contain specific numerical limits. The criteria that apply to Bynum Creek are (A), (C) and (G), and they state:
  - (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
  - (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
  - (G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

### Background Information

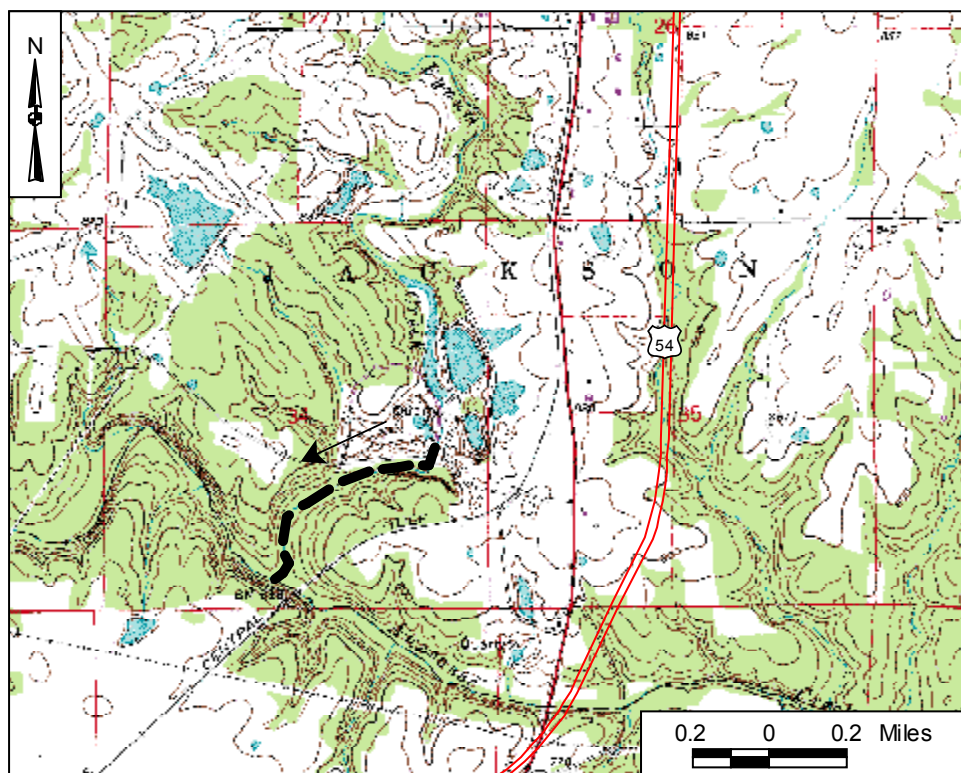
Erosion from the operation of a limestone quarry was causing deposition in Bynum Creek of a large range of limestone pieces, from silt-sized particles to boulders. The movement of so much limestone

into the stream was causing the development of large gravel bars that change the path of the stream flow. This was causing the stream to wander (meander) more and has accelerated bank erosion. Non-Volatile Suspended Solids (NVSS) are the mineral solids (like silt, sand and gravel) coming from soil erosion or erosion of mine waste materials or stockpiles. When these solids get into a stream, they settle onto the bottom, smothering natural substrates (materials in the streambed), aquatic invertebrate animals and fish eggs.

Qualitative examination of the aquatic invertebrate animals (like water insects and crayfish) in Bynum Creek indicated their habitat was being degraded. The quarry causing the impairment changed ownership in 2002 and storm water control measures were enacted. A road crossing over Bynum Creek within the quarry that had been constructed by the former owner almost entirely out of waste limestone fines was continually washing downstream into the creek. A large part of the crossing was replaced and the entire crossing armored in large rip rap by the current owners in May 2007.

The department opted to correct the impairment of Bynum Creek through the quarry's permit rather than through a TMDL. On Oct. 30, 2007, a site specific permit was issued to the quarry to replace the former general permit. The new permit included acknowledgement that the former crossing had been replaced, a schedule of compliance for adding a water diversion berm uphill on the east side of the road entering the crossing, and an in-stream monitoring requirement. A request for concurrence on using the Oct. 2007 permit in lieu of a TMDL was sent to the Environmental Protection Agency (EPA) in a letter dated Nov. 6, 2007, and was approved by EPA on Dec. 28, 2007. The creek was subsequently removed from Missouri's 303(d) List and did not appear on the 2004/2006 303(d) List approved by EPA in Jan. 2009.

### Bynum Creek in Callaway County, Missouri



— — — . Impaired Segment      ← Direction of Flow

**For more information call or write:**

Missouri Department of Natural Resources

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(The department's TMDL Fact Sheet titled, "What are TMDLs?," defines TMDLs in general terms and can be found at:  
<http://www.dnr.mo.gov/pubs/pub2090.pdf>)